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L1: Entry 3 of 4 File: USPT Feb 8, 1994

DOCUMENT-IDENTIFIER: US 5284496 A
TITLE: Oligomeric/polymeric multifunctional additives to improve the low-temperature properties of distillate fuels

Detailed Description Text (26):
Phthalic anhydride (31.2 g, 0.21 mol; e.g., from Aldrich Chemical Co.), epoxidized methyl soyate (2.54 g, 0.010 mol; e.g., Vikoflex 7010 from Viking Chemical), 1,2-epoxyoctadecane (57.0 g, 0 20 mol; e.g., Vikolox 18 from Viking Chemical), triethylamine (0.43 g, 0.004 mol; e.g., from Aldrich Chemical Co.), and 4-dimethylaminopyridine (0.13 g, 0.001 mol; e.g., DMAP from Nepera, Inc.) were combined and heated at 110.degree. C./5 hours and 140.degree. C./1 hour. The reaction mixture was then hot filtered through a mixed bed of alumina (approximately 20%) and Celite to give 79.0 g of the final product.

Detailed Description Paragraph Table (4):
APPENDIX 1. GLOSSARY
CFPP: cold filter plugging point DMAP: 4-dimethylamino-pyridine Herzog: cloud point test; Herzog method Phthalic anhydride: 1,2-benzenedicarboxylic anhydride Quadrol: tetrahydroxypropyl ethylenediamine Vikoflex 7010: epoxidized methyl soyate Vikoflex 9010: epoxidized methyl linseedate Vikolox "N": Linear 1,2-epoxyalkane, where N = the carbon number of the alkyl chain; N = 12, 14, 16, 18, 20, 20-24, 24-28, 30+.

CLAIMS:

6. The product of claim 1 wherein the monomers are phthalic anhydride, epoxidized methyl soyate and 1-2-epoxyoctadecane.

7. The additive reaction products of claim 1 prepared from monomers and/or reactive materials wherein said monomers or reactive materials are selected from the group consisting of 1,2-epoxyoctadecane, dipentaerythritol, pentaerythritol, tetrahydroxpropyl ethylenediamine, triethanolamine, 2-amino-2-ethyl-1,3-propanediol, epoxidized methyl soyate, epoxidized methyl linsedate, and phthalic anhydride.

12. The process of claim 8 wherein the monomers are phthalic anhydride, 1,2-epoxyoctadecane, and epoxidized methyl soyate.

14. The process of claim 8 wherein the additive products are prepared from monomers and/or reactive materials wherein said monomers or reactive materials are selected from the group consisting of 1,2-epoxyoctadecane, dipentaerythritol, pentaerythritol, tetrahydroxypropyl ethylenediamine, triethanolamine, 2-amino-2-ethyl-1,3-propanediol, epoxidized methyl soyate, epoxidized methyl linsedate, and phthalic anhydride.

21. The fuel composition of claim 17 wherein the monomers and reactive material are respectively phthalic anhydride and 1,2-epoxyoctadecane, and epoxidized methyl soyate.

23. The fuel compositions of claim 18 wherein the additive products are prepared from monomers and/or reactive materials wherein said monomers or reactive materials are selected from the group consisting of 1,2-epoxyoctadecane, dipentaerythritol, pentaerythritol, tetrahydroxypropyl ethylenediamine, triethanolamine, 2-amino-2-ethyl-1,3-propanediol, epoxidized methyl soyate, epoxidized methyl linsedate, and phthalic anhydride.

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L1: Entry 4 of 4 File: USPT Nov 30, 1993

DOCUMENT-IDENTIFIER: US 5266084 A
TITLE: Oligomeric/polymeric multifunctional additives to improve the low-temperature properties of distillate fuels

Detailed Description Paragraph Table (3):

APPENDIX 1. GLOSSARY

AC-Methyl: 1-methyl-5-norbornene-2,3-dicarboxylic anhydride Armeen 2HT: di(hydrogenated tallow) amine Araldite DY 023: cresol glycidyl ether CFPP: cold filter plugging point Herzog: cloud point test; Herzog method Phthalic anhydride: 1,2-benzenedicarboxylic anhydride Vikolox 7010: epoxidized methyl soyate Vikolox "N": Linear 1,2-epoxyalkane, where N = the carbon number of the alkyl chain; N = 12, 14, 16, 18, 20, 20-24, 24-28, 30+.

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L5: Entry 21 of 26 File: USPT Sep 3, 1985

DOCUMENT-IDENTIFIER: US 4539352 A
TITLE: Injection-moldable thermoplastic polyester composition

Brief Summary Text (20):
The "epoxy plasticizers" used pursuant to this invention represent epoxy oils and esters of the type used as plasticizer-stabilizers for poly(vinyl chloride) resins. While any type of epoxy plasticizer may be employed in the practice of the invention preferred types include the following:

Brief Summary Text (47):
Mixtures comprising monoepoxy aliphatic monocarboxylic acid esters and diepcxy aliphatic monocarboxylic acid esters (category (c) above) are available commercially. For example, epoxidized esters of soybean oil acids and linseed oil acids are available from Viking Chemical Company, 838 Baker Building, Minneapolis, Minn. 55402, under the product designation VIKOFLEX. Such epoxidized esters are: methyl epoxy soyate (VIKOFLEX 7010), ethyl epoxy soyate (VIKOFLEX 7020), propyl epoxy soyate (VIKOFLEX 7030), butyl epoxy soyate (VIKOFLEX 7040), hexyl epoxy soyate (VIKOFLEX 7060), octyl epoxy soyate (VIKOFLEX 7080), methyl epoxy linseedate (VIKOFLEX 9010), ethyl epoxy linseedate (VIKOFLEX 9020), propyl epoxy linseedate (VIKOFLEX 9030), butyl epoxy linseedate (VIKOFLEX 9040), hexyl epoxy linseedate (VIKOFLEX 9060) and octyl epoxy linseedate (VIKOFLEX 9080).

Brief Summary Text (58):
Highly preferred epoxidized plasticizer-adjuvant combinations are: the ester-adjuvant combination of epoxidized octyl oleate and sodium stearate; the epoxidized unsaturated triglyceride-adjuvant combinations of epoxidized soybean oil and sodium stearate and epoxidized linseed oil and sodium stearate; and the epoxy ester mixture-adjuvant combinations of the epoxy esters of soybean oil, of linseed oil or of the fatty acid fraction of tall oil and sodium stearate, combinations of octyl epoxy soyate (e.g., VIKOFLEX 7080), octyl epoxy linseedate (e.g., VIKOFLEX 9080) or octyl epoxy tallate (e.g., DRAPEX 4.4) and sodium stearate are more preferred.

Detailed Description Text (34):
Octyl Epoxy Soyate: from Viking Chemical Company under the product designation VIKOFLEX 7080;

Detailed Description Text (35):
Octyl Epoxy Lindseedate: from Viking Chemical Company under the product designation VIKOFLEX 9080;

Detailed Description Paragraph Table (10):
TABLE X Various PET Compositions and Their Moldability Comparative Examples Examples 53 54 55 56 57
Composition Polyethylene 100 100 100 100 100 Terephthalate, parts Glass Fiber, phr* 43 43 43 43 43 Octyl Epoxy Linseed- 3.0 -- -- -- -- ate.sup.a, phr* Octyl Epoxy Soyate.sup.b, -- 3.0 -- -- -- phr* Octyl Epoxy Tallate.sup.c, -- -- 3.0 -- -- phr* Sodium Stearate, phr* 0.5 0.5 0.5 0.5 -- Zinc Sulfide.sup.d, phr* -- -- 2.0 -- -- Moldability Observation Excel- Excel- -- Non- Non- lent lent mold- mold- able able Number of Sticks/Number of Shots 0/10** 0/10** 0/15 10/10 10/10
*Parts per 100 parts PET **Estimate number of shots were not recorded Estimate number of shots were not recorded; however, in each run the molded specimen had to be physically removed from the mold .sup.a VIKOFLEX 9080 from Viking Chemical Company .sup.b VIKOFLEX 7080 from Viking Chemical Company .sup.c DRAPEX 4.4 from Argus Chemical Corporation .sup.d Zinc Sulfide colorizing agent

Detailed Description Paragraph Table (11):

TABLE XI Compositions of This Invention and Their Physical Properties Examples 53 54 55

Composition Polyethylene Terephthalate, parts	100	100	100
Glass Fiber, phr*	43	43	43
Octyl Epoxy Linseedate.sup.a, phr*	3.0	--	--
Octyl Epoxy Soyate.sup.b, phr*	--	3.0	--
Octyl Epoxy Tallate.sup.c, phr*	--	--	3.0
Sodium Stearate, phr*	0.5	0.5	0.5
Zinc Sulfide.sup.d, phr*	--	--	2.0
Properties Specific Gravity	1.583	1.587	1.578
Tensile Yield, psi	19,900	18,600	18,500
Tensile Elastic Modulus, 10.sup.3 psi	1,330	1,410	1,405
Elongation at yield, %	10	10	--
Flexural Strength, psi	32,000	28,500	27,700
Flexural Elastic Modulus, 10.sup.3 psi	1,440	1,421	1,360
Izod Impact, 1/4" bar, ft-lbs/in.	1.9	2.0	1.4
Izod Impact, 1/8" bar, ft-lbs/in.	1.7	1.7	--
Heat Deflection Temperature	239	241	237
@ 264 psi, .degree.C.			
Heat Deflection Temperature	250	249	--
@ 66 psi, .degree.C.			
Rockwell Hardness, R Scale	123	123	--

*Parts per 100 parts PET .sup.a VIKOFLEX 9080 from Viking Chemical Company .sup.b VIKOFLEX 7080 from Viking Chemical Company .sup.c DRAPEX 4.4 from Argus Chemical Corporation .sup.d Zinc Sulfide colorizing agent

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L5: Entry 23 of 26 File: USPT Dec 4, 1984

DOCUMENT-IDENTIFIER: US 4486561 A
TITLE: Injection-moldable thermoplastic polyester composition

Brief Summary Text (20):
The "epoxy plasticizers" used pursuant to this invention represent epoxy oils and esters of the type used as plasticizer-stabilizers for poly(vinyl chloride) resins. While any type of epoxy plasticizer may be employed in the practice of the invention preferred types include the following:

Brief Summary Text (48):
Mixtures comprising monoepoxy aliphatic monocarboxylic acid esters and diepoxy aliphatic monocarboxylic acid esters (category (c) above) are available commercially. For example, epoxidized esters of soybean oil acids and linseed oil acids are available from Viking Chemical Company, 838 Baker Building, Minneapolis, Minn. 55402, under the product designation VIKOFLEX. Such epoxidized esters are: methyl epoxy soyate (VIKOFLEX 7010), ethyl epoxy soyate (VIKOFLEX 7020), propyl epoxy soyate (VIKOFLEX 7030), butyl epoxy soyate (VIKOFLEX 7040), hexyl epoxy soyate (VIKOFLEX 7060), octyl epoxy soyate (VIKOFLEX 7080), methyl epoxy linseedate (VIKOFLEX 9010), ethyl epoxy linseedate (VIKOFLEX 9020), propyl epoxy linseedate (VIKOFLEX 9030), butyl epoxy linseedate (VIKOFLEX 9040), hexyl epoxy linseedate (VIKOFLEX 9060) and octyl epoxy linseedate (VIKOFLEX 9080).

Brief Summary Text (59):
Highly preferred epoxidized plasticizer-adjuvant combinations are: the ester-adjuvant combination of epoxidized octyl oleate and sodium stearate; the epoxidized unsaturated triglyceride-adjuvant combinations of epoxidized soybean oil and sodium stearate and epoxidized linseed oil and sodium stearate; and the epoxy ester mixture-adjuvant combinations of the epoxy esters of soybean oil, of linseed oil or of the fatty acid fraction of tall oil and sodium stearate, combinations of octyl epoxy soyate (e.g., VIKOFLEX 7080), octyl epoxy linseedate (e.g., VIKOFLEX 9080) or octyl epoxy tallate (e.g., DRAPEX 4.4) and sodium stearate are more preferred.

Detailed Description Text (33):
Octyl Epoxy Soyate: from Viking Chemical Company under the product designation VIKOFLEX 7080;

Detailed Description Text (34):
Octyl Epoxy Linseedate: from Viking Chemical Company under the product designation VIKOFLEX 9080;

Detailed Description Paragraph Table (10):
TABLE X Various PET Compositions and Their Moldability Comparative Examples Examples 53 54 55 56 57

Composition					
Polyethylene Terephthalate, parts	100	100	100	100	100
Glass Fiber, phr*	43	43	43	43	43
Octyl Epoxy Linseedate.sup.a, phr*	3.0	--	--	--	--
Octyl Epoxy Soyate.sup.b, phr*	--	3.0	--	--	--
Octyl Epoxy Tallate.sup.c, phr*	--	--	3.0	--	--
Sodium Stearate, phr*	0.5	0.5	0.5	0.5	--
Zinc Sulfide.sup.d, phr*	--	--	2.0	--	--
Moldability Observation	Excel- lent	Excel- lent	moldable	Non- moldable	Non-
Number of Sticks/ Number of Shots	0/10**	0/10**	0/15	10/10	10/10

*Parts per 100 parts PET **Estimate number of shots were not recorded Estimate number of shots were not recorded; however, in each run the molded specimen had to be physically removed from the mold .sup.a VIKOFLEX 9080 from Viking Chemical .sup.b VIKOFLEX 7080 from Viking Chemical .sup.c DRAPEX 4.4 from Argus Chemical .sup.d Zinc Sulfide colorizing agent

Detailed Description Paragraph Table (11):

TABLE XI Compositions of This Invention and Their Physical Properties Examples 53 54 55

Composition Polyethylene Terephthalate, parts	100	100	100
Glass Fiber, phr*	43	43	43
Octyl Epoxy Linseedate.sup.a, phr*	3.0	--	--
Octyl Epoxy Soyate.sup.b, phr*	--	3.0	--
Octyl Epoxy Tallate.sup.c, phr*	--	--	3.0
Sodium Stearate, phr*	0.5	0.5	0.5
Zinc Sulfide.sup.d, phr*	--	--	2.0
Properties Specific Gravity	1.583	1.587	1.587
Tensile Yield, psi	19,900	18,600	18,500
Tensile Elastic Modulus, 10.sup.3 psi	1,330	1,410	1,405
Elongation at yield, %	10	10	--
Flexural Strength, psi	32,000	28,500	27,700
Flexural Elastic Modulus, 10.sup.3 psi	1,440	1,421	1,360
Izod Impact, 1/4" bar, ft-lbs/in.	1.9	2.0	1.4
Izod Impact, 1/8" bar, ft-lbs/in.	1.7	1.7	--
Heat Deflection Temperature	239	241	237
@ 264 psi, .degree.C.			
Heat Deflection Temperature	250	249	--
@ 66 psi, .degree.C.			
Rockwell Hardness, R Scale	123	123	--

*Parts per 100 parts PET .sup.a VIKOFLEX 9080 from Viking Chemical .sup.b VIKOFLEX 7080 from Viking Chemical .sup.c DRAPEX 4.4 from Argus Chemical .sup.d Zinc Sulfide colorizing agent

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L4: Entry 5 of 98 File: PGPB Aug 8, 2002

DOCUMENT-IDENTIFIER: US 20020105093 A1
TITLE: Encapsulant composition and electronic package utilizing same

Detail Description Paragraph (26):
[0039] Engineering thermoplastics are typically endcapped with nonreactive functional groups. It may also be advantageous for the flexibilizing agent to be a low molecular weight segment or oligomer of a previously described engineering thermoplastic, which contains functional groups that are capable of reaction with the cyanate or epoxy-cyanate resin during thermally induced polymerization. Accordingly, thermoplastic materials that have been modified to contain a thermoplastic oligomer backbone and to have more reactive end groups are particularly useful as flexibilizers. For this purpose hydroxy-terminated polysulfone oligomers based on the UDEL P-1700 polymer backbone can be synthesized at various molecular weights. UDEL P-1700 is one of the UDEL products previously described. These materials can be more easily blended with the resin monomer mixture and the resulting compositions are less viscous than those having the same percentage of high molecular weight polymer of similar backbone, but with different end groups. These materials are also found to be very effective in increasing fracture toughness. Oligomers with other backbones can also be used, particularly those of poly(arylene ethers), polyarylates, and polyesters. Conceivably, the oligomer backbone could be that of any of the previously referenced thermoplastics. Reactive end groups are those which react with the cyanate-epoxy resin during thermal polymerization. These groups include hydroxy, epoxy, and carboxylate groups. Flexible molecules which contain two or more epoxy groups represent a class of material which can also useful as flexibilizers for the present invention. These compounds typically contain long aliphatic groups which act to reduce crosslink density in the cured epoxy resin. In addition to increasing the fracture toughness of the cured resin, the addition of low viscosity flexibilizers can also significantly reduce the overall viscosity of the uncured resin/flexibilizer mixture. Useful flexibilizers include but are not limited to: 1,4-butane-diol diglycidyl ethers (product name SHELL HELOXY MODIFIER 67), neopentlyglycol diglycidyl ether (product name SHELL HELOXY MODIFIER 68), cyclohexane dimethanol diglycidyl ether (product name SHELL HELOXY MODIFIER 107), trimethylol ethane triglycidyl ethers (product name SHELL HELOXY MODIFIER 44), dibromoneopentylglycol glycidyl ethers (product name SHELL HELOXY MODIFIER 56), propoxylated glycerol polyglycidyl ether (product name SHELL HELOXY MODIFIER 84), polypropylene glycol glycidyl ether (product name SHELL HELOXY MODIFIER 32), polyglycidyl ether of castor oil (product name SHELL HELOXY MODIFIER 505), diner acid diglycidyl esters (product name SHELL HELOXY MODIFIER 71), resorcinol diglycidyl ether (product name SHELL HELOXY MODIFIER 69). These HELOXY MODIFIERS are available from Shell Chemical Company. Other examples of useful flexibiliziers include epoxidized propylene glycol dioleates (product name ELF ATOCHEM VIKOFLEX 5075), epoxy esters (product name ELF ATOCHEM VIKOFLEX 4050), 1,2-tetradecane oxides (product name ELF ATOCHEM VIKOFLEX 14), internally epoxidized 1,3-butadiene homopolymers (product name ELF ATOCHEM POLY BD 600 and POLY BD 605). These ATOCHEM flexibilizers are available from Atofina Chemicals Inc. Further examples of flexibilizers useful in this invention are diglycidyl ether, glycidyl glycidate, bis(2,3-epoxy-2-methylpropyl)ether, and polyglycoldiepoxides, available under the product names DER 732 and DER 736 from DOW Chemical Company. Flexible molecules which contain two or more hydroxy groups are also useful as flexibilizers for this invention. These flexible polyol compounds also contain long aliphatic groups. Useful polyols include E-caprolacetone triol available under the product names TONE 0301, 0305, 0310 from Union Carbide Corp, Danbury, Conn.

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L4: Entry 13 of 98 File: USPT Jan 14, 2003

DOCUMENT-IDENTIFIER: US 6506259 B1
TITLE: Carbon dioxide cleaning and separation systems

Detailed Description Text (4):
Additional examples of suitable oils include, but are not limited to, methyl soyates such as Oleocal.RTM. ME-130 (Lambert Technologies), Carolube.RTM. Soy (Chemol Company Inc.), Vikoflex.RTM. 7010 (Elf Atochem), Soygold.RTM. 1000 and Soygold.RTM. 2000 (AG Environmental Products), MESOY.RTM. (Chemol Company Inc.), AGSOY ME.RTM. (AG Environmental Products); vegetable oils such as Capital.RTM., Factice.RTM., Lipex.RTM., Polytung.RTM., Pureco.RTM., StaBland.RTM., and Vikoflex.RTM.; and, generally, rapeseed oil (canola oil), linseed oil, lanolin oils and fish oils. Classifications of suitable oils include, but are not limited to, methyl linoleates, linolenic methyl esters, linoleic methyl esters, epoxidized oils, and oleates.

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L4: Entry 28 of 98 File: USPT Mar 27, 2001

DOCUMENT-IDENTIFIER: US 6207624 B1
TITLE: Engine oil having dispersant and aldehyde/epoxide for improved seal performance, sludge and deposit performance

Detailed Description Text (168):
The epoxide can also be a vegetable oil epoxide or an ester of a vegetable oil epoxide. Both of these epoxide types are available from Elf Atochem in the Vikoflex.RTM. series. Vikoflex.RTM. 7170 and Vikoflex.RTM. 7190 are epoxidized soybean oil and epoxidized linseed oil, respectively. As an ester of a vegetable oil epoxide, the ester group contains from 1 to 8 carbon atoms. Representative examples of esters of vegetable oil epoxides are Vikoflex.RTM. 7010, a methyl ester of epoxidized soybean oil, Vikoflex.RTM. 9010, a methyl ester of epoxidized linseed oil, Vikoflex.RTM. 7040 and Vikoflex.RTM. 9040, butyl esters of epoxidized soybean oil and epoxidized linseed oil, respectively and Vikoflex.RTM. 7080 and Vikoflex.RTM. 9080, 2-ethylhexyl esters of epoxidized soybean oil and epoxidized linseed oil, respectively.

L4: Entry 33 of 98 File: USPT Sep 19, 2000

DOCUMENT-IDENTIFIER: US 6121211 A
TITLE: Engine oil having dithiocarbamate and aldehyde/epoxide for improved seal performance, sludge and deposit performance

Detailed Description Text (35):
The epoxide can also be a vegetable oil epoxide or an ester of a vegetable oil epoxide. Both of these epoxide types are available from Elf Atochem in the Vikoflex.RTM. series. Vikoflex.RTM. 7170 and Vikoflex.RTM. 7190 are epoxidized soybean oil and epoxidized linseed oil, respectively. As an ester of a vegetable oil epoxide, the ester group contains from 1 to 8 carbon atoms. Representative examples of esters of vegetable oil epoxides are Vikoflex.RTM. 7010, a methyl ester of epoxidized soybean oil, Vikoflex.RTM. 9010, a methyl ester of epoxidized linseed oil, Vikoflex.RTM. 7040 and Vikoflex.RTM. 9040, butyl esters of epoxidized soybean oil and epoxidized linseed oil, respectively and Vikoflex.RTM. 7080 and Vikoflex.RTM. 9080, 2-ethylhexyl esters of epoxidized soybean oil and epoxidized linseed oil, respectively.

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L4: Entry 41 of 98 File: USPT Mar 10, 1998

DOCUMENT-IDENTIFIER: US 5726216 A
TITLE: Toughened epoxy resin system and a method thereof

Brief Summary Text (48):
Flexible molecules which contain two or more epoxy groups represent a class of material which is also useful as Part C of this invention. These compounds typically contain long aliphatic groups which act to reduce crosslink density in the cured epoxy resin. In addition to increasing the fracture toughness of the cured epoxy resin, the addition of low viscosity flexibilizers can also significantly reduce the overall viscosity of the uncured epoxy resin/initiator/flexibilizer mixture. Specific examples are given in Examples 5 and 6, and in Table 2. Useful flexibilizers include but are not limited to: 1,4-butanediol diglycidyl ethers (such as SHELL HELOXY MODIFIER 67), neopentlyglycol diglycidyl ether (such as SHELL HELOXY MODIFIER 68), cyclohexane dimethanol diglycidyl ether (such as SHELL HELOXY MODIFIER 107), trimethylol ethane triglycidyl ethers (such as SHELL HELOXY MODIFIER 44), dibromoneopentyl glycol glycidyl ethers (such as SHELL HELOXY MODIFIER 56), propoxylated glycerol polyglycidyl ether (such as SHELL HELOXY MODIFIER 84), polypropylene glycol glycidyl ether (such as SHELL HELOXY MODIFIER 32), polyglycidyl ether of castor oil (such as SHELL HELOXY MODIFIER 505), dimer acid diglycidyl esters (such as SHELL HELOXY MODIFIER 71), resorcinol diglycidyl ether (such as SHELL HELOXY 69), epoxidized soybean oils (such as ELF ATOCHEM VIKOFLEX 7170), epoxidized linseed oils (such as ELF ATOCHEM VIKOFLEX 7190, methyl epoxy soyates (such as ELF ATOCHOM VIKOFLEX 7010), epoxidized propylene glycol dioleates (such as ELF ATOCHEM VIKOFLEX 5075), epoxy esters (ELF ATOCHEM VIKOFLEX 4050), 1,2-tetradecane oxides (such as ELF ATOCHEM VIKOFLEX 14), internally epoxidized 1,3-butadiene homopolymers (such as ELF ATOCHEM POLY BD 600 and POLY BD 605), diglycidyl ether, glycidyl glycidate, bis(2,3-epoxy-2-methylpropyl)ether, and polyglycoldiepoxides (such as DOW Chemical DER 732 and DER 736). Flexible molecules which contain two or more hydroxy groups are also useful as Part C of this invention. These flexible polyol compounds also contain long aliphatic groups. Useful polyols include E-caprolactone triol (such as UNION CARBIDE TONE 0301, 0305, 0310).

Detailed Description Text (15):
10% VIKOFLEX 7170 with TACTIX 123

Detailed Description Text (16):
Elf Atochem ATO VIKOFLEX 7170 (epoxidized soybean oil), (60 g), OPPI (18 g), and Dow TACTIX 123 (540 g) was mixed at approximately 80.degree. C. Viscosity of the solution was 3600 cp at 24.degree. C. Specimens were cured as described in Example 1. Fracture toughness was 0.598 and 0.752 MPa m.sup.1/2 at 25 and -100.degree. C., respectively. Glass transition temperature was 151.degree. C. (Tan delta) and 133.degree. C. (G"). Flexural modulus was 2.79 GPa at 25.degree. C. with an initial service temperature of 117.degree. C. Water absorption after 48 h water boil was 2.02%.

Detailed Description Paragraph Table (2):
TABLE 2
Toughening of Radiation Cured Epoxy Resins with Reactive Flexibilizers.sup.1,2 Glass Transition Toughening Temperature Agent (.degree.C.) Initial Service Flexural Modulus Weight Gain Fracture Concentration Tan Temperature.sup.3 E' (estimated) 25.degree. C. (48 h H.sub.2 O Toughness Toughening Agent (%) Epoxy Resin Delta G" (.degree.C.) (GPa) (%) K.sub.1c (MPa m.sup.1/2)
Control None
Tactix 123 163 145 120 3.04 1.41 0.411 (25.degree. C.) Dow DER 732 10 Tactix 123 0.423 (25.degree. C.) Dow DER 736 10 Tactix 123 0.569 (25.degree. C.) Shell Heloxy 32 10 Tactix 123 0.487 (25.degree. C.) Shell Heloxy 68 10 Tactix 123 158 135 0.534 (25.degree. C.) 0.552 (-100.degree. C.) Shell Heloxy 71 10 Tactix 123 0.529 (25.degree.

C.) Shell Heloxy 505 10 Tactix 123 0.480 (25.degree. C.) 0.708 (-100.degree.) Elf Atochem 10 Tactix 123 166 151 123 2.68 1.28 0.594 (25.degree. C.) ATO POLY bd 600 0.463 (-100.degree. C.) Elf Atochem 10 Tactix 123 163 148 124 2.85 1.62 0.420 (25.degree. C.) ATO POLY bd 605 Elf Atochem 10 Tactix 123 139 121 101 2.82 0.592 (25.degree. C.) ATO Vikoflex 7010 Elf Atochem 5 Tactix 123 0.467 (25.degree. C.) ATD Vikoflex 7170 Elf Atochem 10 Tactix 123 151 133 117 2.79 2.02 0.598 (25.degree. C.) ATD Vikoflex 7170 0.752 (-100.degree.) Elf Atochem 20 Tactix 123 134 113 0.559 (25.degree.) ATD Vikoflex 7170 Elf Atochem 30 Tactix 123 118 94 0.596 (25.degree. C.) ATD Vikoflex 7170 Elf Atochem 10 Tactix 123 172 137 0.479 (25.degree. C.) ATD Vikoflex 7190 Elf Atochem 10 Tactix 123 130 112 97 2.63 1.12 0.491 (25.degree. C.) ATO Vikolox 14 Union Carbide 10 Tactix 123 0.810 (25.degree. C.) Tone 301 Union Carbide 10 Tactix 123 0.621 (25.degree. C.) Tone 310 Elf Atochem ATO 15 Tactix 556 175 150 0.555 (25.degree. C.) Vikoflex 7170 Shell Heloxy 32 30 Tactix 742 Plaques

Exothermed .sup.1 All formulations contained OPPI at a concentration of 3 phr. .sup.2 All specimens were cured using a total dosage of 150 kGy. .sup.3 Initial service temperature is defined as the temperature at which the modulus is at 50% of its value at 25.degree. C.

Detailed Description Paragraph Table (4):

TABLE 4

Toughening of Radiation Cured Epoxy Resins with Mixtures of Tougheners Glass Transition Toughening Temperature Agent (.degree.C.) Initial Service Flexural Modulus Weight Gain Fracture Concentration Tan Temperature.sup.3 E' (estimated) 25.degree. C. (48 h H.sub.2 O Toughness Toughening Agent (%) Epoxy Resin Delta G" (.degree.C.) (GPa) (%) K.sub.1c (MPa m.sup.1/2)

Control None Tactix 123 163 145 120 3.04 1.41 0.411 (25.degree. C.) Udel P-1700 NT 10 Tactix 123 158 138 0.766 (25.degree. C.) Shell Heloxy 68 10 1.025 (-100.degree. C.) Udel P-1700 NT 10 Tactix 123 90 0.708 (25.degree. C.) Shell Heloxy 71 10 0.932 (-100.degree. C.) Udel P-1700 NT 10 Tactix 123 153 124 0.707 (25.degree. C.) Shell Heloxy 505 10 Udel P-1700 NT 10 Tactix 123 0.885 (25.degree. C.) Dow DER 732 10 Udel P-1700 NT 10 Tactix 123 153 128 0.716 (25.degree. C.) Elf Atochem ATO 10 1.058 (-100.degree. C.) Vikoflex 7170 Udel P-1700 NT 18 Tactix 123 140 98 0.858 (25.degree. C.) Elf Atochem ATO 10 Vikoflex 7170 Udel P-1700 NT 20 Tactix 123 151 104 0.965 (25.degree. C.) Elf Atochem ATO 20 Vikoflex 7170 Udel P-1700 NT 10 Tactix 123 80 0.772 (25.degree. C.) Elf Atochem ATO 10 Vikoflex 7190 Udel P-1700 NT 10 Tactix 123 171 153 0.799 (25.degree. C.) Hydroxy-Terminated 10 1.003 (-100.degree. C.) Polysulfone Oligomer; Mn, 6000 g/mole Udel P-1700 NT 10 Tactix 123 151 120 0.538 (25.degree. C.) Hydroxy-Terminated 10 Polysulfone Oligomer; Mn 6000 g/mole Elf Atochem ATO 10 Vikoflex 7170 Udel P-1700 NT 15 Tactix 556 185 172 0.734 (25.degree. C.) Rhone-Poulenc 42.5 0.935 (-100.degree. C.) Heloxy 69

.sup.1 All formulations contained OPPI at a concentration of 3 phr. .sup.2 All specimens were cured using a total dosage of 150 kGy. .sup.3 Initial service temperature is defined as the temperature at which the modulus is at 50% of its value at 25.degree. C.

Detailed Description Paragraph Table (5):

TABLE 5

Electron Beam Cured Composite Laminate Properties Resin % Viscos- Void Vol., .sup.3,4 Room .sup.2 Initial ity @ ASTM D .sup.3 Room .sup.3,4 RT O.degree. .sup.3,4 RT Temp. O.degree. Tg, Service 70.degree. C., % Fiber 3171 Temp. O.degree. Temp. O.degree. Flex. Str., Flex. Mod., .sup.3 Room ILSS, .degree.C, Temper- cps Volume, (resin Flexural Flexural ksi; msi; Temp. ksi;gree. Prepreg (Tan ature (Debulk ASTM D density = Strength, Modulus, [AFTER [AFTER ILSS, [AFTER Resin System.sup.1 delta) (.degree.C.) Temp.) 3171 1.2) ksi msi CYCLING] CYCLING] ksi CYCLING]

Tactix 123 103, 103 44,750 60.16 2.62 160 19.2 195 (176) 21.9 (20.8) 11 11.9 (11.4) (73.9%)/DER 661 175 (13%)/Udel P-1700 NT (13%)/OPPI (3 phr) Tactix 123 89, 153 37,200 59.6 2.77 189 21.6 183 (177) 20.5 (20.5) 11.1 10.6 (11.8) (65.2%)/DER 661 160 (13%)/Udel P-1700 NT (13%)/ATO Vikoflex 7170 (8.7%)/OPPI (3 phr) Tactix 123 210 204 27,100 51.02 6.06 153 21.4 169 (145) 22.4 (20.1) 7.3 7.9 (9.1) (9%)/Tactix 556 (81%)/Kraton FG 1901X (10%)/OPPI (3 phr) Epon 828 147 145 28,600 59.96 2.06 147 20.2 151 (146) 20.2 (19.7) 7.2 6.6 (7) (44.73%), Kraton FG 1901X (7.9%)/DER 661 (47.36%)/OPPI (3 phr) Tactix 742 157, 212 7,450 57.74 1.2 190 20.3 192 (190) 21.5 (21.3) 10.1 10.7 (11.2) (70.06%)/ 420 DER 332 (16.9%)/DER 661 (13%)/OPPI (3.09 phr) Tactix 123 94, 107 11,500 62.22 2.6 157 18.6 151 (156) 18.1 (18.5) 9 10.8 (11.1) (68.64%)/ 172 DER 661 (8.48%)/Hydroxy terminated Polysulfone Mn, 6000 g/mole (22.88%)/OPPI (2.75 phr) Tactix 123 202 197 10,800 59.57 5.6 169 19.9 175 (164) 20.9 (21.1) 6.7 8 (9.2) (8.1%)/Tactix 556 (72.8%)/DER 661 (9.9%)/Shell EKP 206 (9.3%)/OPPI (2.97 phr) Tactix 123 137, 185 11,400

53.28 2.9 171 22 181 (180) 22.6 (22.7) 7.3 8.4 (8.5) (14.7%)/ 195 Tactix 556 (58.7%)/DER 661 (18.8%)/Shell EKP 207 (10%)/ OPPI (3 phr) Tactix 742 435 344 10,200 60.52 4.36 188 21.1 211 (195) 21.6 (20.4) 6.8 7.7 (8) (100%)/OPPI (3 phr) Tactix 742 128, 365 22,300 57.47 4.23 159 20.1 184 (172) 20.5 (20.7) 5.8 7.1 (7.5) (85%)/Shell 435 EKP 206 (15%)/OPPI (3 phr) Tactix 742 144, 365 23,100 57.59 6.75 155 21 175 (163) 19.9 (20.7) 5.5 6.5 (7) (85%)/Shell 435 EKP 207 (15%)/OPPI (3 phr)

.sup.1 Undirectional carbon fiber prepreg (Hercules carbon fiber IM7/GP12K) laminates laid up at a nominal thickness of 0.080 inches and hot debulked at 70.degree. C. for 1 hour. Laminates electron beam cured a a dose of 150 kGy. .sup.2 Initial Service Temperature is defined as the temperature at which the DMA modulus is at 50% of its value at 25.degree. C. .sup.3 Flexural strength and modulus determined using ASTM D 790; 3 point bend, span/depth = 32. Normalized to 60% fiber volume. Interlaminar shear strength (ILSS) determined using ASTM D 2344; Short beam shear method, span/depth = 4. .sup.4 CYCLING Procedure: Specimens placed in -78.5.degree. C. (or -194.degree. C.) for 30 minutes (min.); returned to room temperature (RT) for 30 min; placed in oven at 121.degree. C. for 30 min; returned to RT for 30 min.; procedure performed 3 times. Tested at RT.

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L4: Entry 44 of 98 File: USPT Dec 31, 1996

DOCUMENT-IDENTIFIER: US 5589126 A
TITLE: Plasticized polyester for shrink film applications

Detailed Description Text (9):
Component (B) of the present invention is a plasticizer. Plasticizers useful as component (B) are elected from a C.sub.4 to C.sub.20 alkyl ester of an epoxidized fatty acid having 12 to 20 carbon atoms. The plasticizer should have sufficient stability to permit its incorporation into the polyester at a temperature of 200.degree. C. to 300.degree. C., preferably, 250.degree. C. to 280.degree. C. The term "sufficient stability" means that the plasticizer should be stable to decomposition and volatility within a temperature range of 200.degree. C. to 300.degree. C. Examples of suitable plasticizers include: octyl epoxy soyate, epoxidized soybean oil, epoxy tallates, epoxidized inseed oil, triphenyl phosphate, neopentyl glycol dibenzoate, glycerine, vegetable oil, caster oil, and mineral oil. Preferably, the plasticizer is octyl epoxy soyate which is commercially available under the tradename VIKOFLEX 7080 from Elf Atochem.

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L4: Entry 50 of 98 File: USPT Sep 5, 1995

DOCUMENT-IDENTIFIER: US 5447963 A
TITLE: Method for reducing volatile emissions generated during the preparation of foams and fabrication of foam products

Detailed Description Text (24):
The procedures set forth in Example 1 were repeated. However, for Run E of this example, the porous foam was soaked in an epoxidized octyl soyate (VIKOFLEX 4050, available from Elf Atochem) instead of epoxidized soybean oil. The quantity of soyate in the foam was about 11 wt. % based upon the total weight of foam and oil. For Run F, no filters of any type were placed into the filter box.

Detailed Description Text (31):
The procedures set forth in Example 1 were repeated. However, for Run G of this example, the porous foam was soaked in an epoxidized linseed oil (VIKOFLEX 7190, available from Elf Atochem) instead of epoxidized soybean oil. The quantity of linseed oil in the foam was about 11 wt. %, based upon the total weight of foam and oil. For Run H, no filters of any type were placed into the filter box.

Detailed Description Text (45):
The procedures set forth in Example 1 were repeated. However, for Run K of this example, the porous foam was soaked in epoxidized soybean oil (VIKOFLEX 7170, available from Elf Atochem) which was obtained from a source that is different from the source of the oil used in Example 1. The quantity of epoxidized soybean oil in the foam was about 11 wt % based upon the total weight of foam and oil For Run L, no filters of any type were placed into the filter box.

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L4: Entry 68 of 98 File: USPT Feb 22, 1994

DOCUMENT-IDENTIFIER: US 5288820 A
TITLE: Thermosetting coating compositions

Brief Summary Text (29):
Vikoflex 7010 is a methyl epoxy sorbate available from Elf-Atochem.

Brief Summary Text (30):
Vikoflex 12 is a 1,2-dodecane oxide available from Elf-Atochem.

Brief Summary Text (31):
Vikoflex 7170 is an epoxidized soybean oil available from Elf-Atochem.

Detailed Description Paragraph Table (2):
TABLE II

Example	Epoxide Compound	APHA Color
C-1	Control	150
1	Limonene Diepoxide	10
2	Limonene Monoepoxide	20
3	Limonene Monoepoxide	5
C-9	Vikoflex 7010	80
C-10	Alpha Pinene Epoxide	100
C-11	Vikoflex 12	100
C-12	Poly Bd 605	100
C-13	Poly Bd 130	100
C-14	Vikoflex 7170	150
C-15	Epoxy Polybutene	150

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L4: Entry 78 of 98 File: USPT Sep 15, 1992

DOCUMENT-IDENTIFIER: US 5147594 A
TITLE: Extruding vinylidene chloride copolymer flexible packaging film

Brief Summary Text (45):
thus tying up the Cl which then is not available to degrade the saran during heating in the extruder. However, lower molecular weight processing aids work even better. While it is not intended to be bound to any theory, it is believed that the lower molecular weight processing aids work even better since mobility within the polymer is enhanced, since molecular weight is an indicator of molecular size. Also as the weight-average molecular weight of the PVDC is decreased, free volume within the polymer matrix is increased, an effect which it is believed also facilitates processing aid mobility. Epoxidized compound have oxirane functionalities and thus preferred processing aids are epoxidized compounds such as epoxidized linseed oil, epoxidized soybean oil, epichlorohydrin/bisphenol A, epoxidized tallate, epoxidized glycol dioleate, butyl ester of epoxidized linseed oil fatty acid and the like. Other processing aids may include an additive such as 2-ethyl hexyl diphenyl phosphate, tetrasodium pyrophosphate, oxidized polyethylene, antioxidant, magnesium oxide, or chlorinated polyethylene. Suitable epoxy compounds for use in the present invention may be purchased from C. P. Hall Company or Viking Chemical Company. Brochures entitled "Technical Data" from C. P. Hall Company describe their registered trademark Monoplex S-73 and Monoplex S-75, which are epoxy plasticizers for polyvinyl chloride (PVC). A brochure entitled "Vikoflex" from Viking Chemical Company describes their Vikoflex epoxy plasticizers and esters for PVC.

Brief Summary Paragraph Table (1):

ABBREVIATIONS AND MATERIALS

RH Relative humidity psi Pounds per square inch ft-lbf Foot-pounds force Sq in Square inch Sq m Square meter rpm Rotations per minute OTR Oxygen transmission rate L Longitudinal direction of tubular film T Transverse direction of tubular film (WA) MW (Weight-Average) Molecular weight PVDC Vinylidene chloride copolymer PVDC-MA A copolymer of vinylidene chloride with methyl acrylate sold by Dow Chemical Company. It is about 91.5% VDC and about 8.5% MA by weight. PVDC-MA(1) Dow XU32034.00. (WA) MW = 85,000. PVDC-MA(2) Dow XU32036.00. (WA) MW = 95,000. PVDC-MA(3) Dow XU32027.01. (WA) MW = 105,000. PVDC-VCl A copolymer of vinylidene chloride with vinyl chloride wherein (WA) MW = 85,000. It is about 91.5% VDC and 8.5% VCl by weight. EPOXY(1) Epichlorohydrin/bisphenol A, an epoxy resin sold by Shell as Epon 828. MW = 380. EPOXY(2) Epoxidized soybean oil, sold by Viking Chemical Company as Vikoflex 7177. MW = 1000. EPOXY(3) Epoxidized linseed oil, sold by Viking Chemical Company as Vikoflex 7190. MW = 1050. EPOXY(4) Butyl ester of epoxidized linseed oil fatty acid, sold by Viking Chemical Company as Vikoflex 9040. MW = 373. EPOXY(5) Epoxidized octyl tallate, sold by C. P. Hall Company as Monoplex S-73. MW = 413. EPOXY(6) Epoxidized glycol dioleate, sold by C. P. Hall Company as Monoplex S-75. MW = 637. ASTM American Society Testing Materials .degree.F. Degrees Fahrenheit .degree.C. Degrees Centigrade

Other Reference Publication (1):
Vikoflex.

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L4: Entry 90 of 98 File: USPT Nov 5, 1985

DOCUMENT-IDENTIFIER: US 4551485 A
TITLE: Poly(ethylene terephthalate) blends

Brief Summary Text (29):
Epoxidized esters of soybean oil acids and linseed oil acids such as are available from Viking Chemical Company, 838 Baker Building, Minneapolis, Minn., 55402, under the product designation VIKOFLEX. Among such epoxidized esters are: methyl epoxy soyate (VIKOFLEX 7010), ethyl epoxy soyate (VIKOFLEX 7020), propyl epoxy soyate (VIKOFLEX 7030), butyl epoxy soyate (VIKOFLEX 7040), hexyl epoxy soyate (VIKOFLEX 7060), octyl epoxy soyate (VIKOFLEX 7080), methyl epoxy linseedate (VIKOFLEX 9010), ethyl epoxy linseedate (VIKOFLEX 9020), propyl epoxy linseedate (VIKOFLEX 9030), butyl epoxy linseedate (VIKOFLEX 9040), hexyl epoxy linseedate (VIKOFLEX 9060) and octyl epoxy linseedate (VIKOFLEX 9080).

DOCUMENT-IDENTIFIER: US 4539352 A
TITLE: Injection-moldable thermoplastic polyester composition

Brief Summary Text (47):
Mixtures comprising monoepoxy aliphatic monocarboxylic acid esters and diepcxy aliphatic monocarboxylic acid esters (category (c) above) are available commercially. For example, epoxidized esters of soybean oil acids and linseed oil acids are available from Viking Chemical Company, 838 Baker Building, Minneapolis, Minn. 55402, under the product designation VIKOFLEX. Such epoxidized esters are: methyl epoxy soyate (VIKOFLEX 7010), ethyl epoxy soyate (VIKOFLEX 7020), propyl epoxy soyate (VIKOFLEX 7030), butyl epoxy soyate (VIKOFLEX 7040), hexyl epoxy soyate (VIKOFLEX 7060), octyl epoxy soyate (VIKOFLEX 7080), methyl epoxy linseedate (VIKOFLEX 9010), ethyl epoxy linseedate (VIKOFLEX 9020), propyl epoxy linseedate (VIKOFLEX 9030), butyl epoxy linseedate (VIKOFLEX 9040), hexyl epoxy linseedate (VIKOFLEX 9060) and octyl epoxy linseedate (VIKOFLEX 9080).

Brief Summary Text (58):
Highly preferred epoxidized plasticizer-adjuvant combinations are: the ester-adjuvant combination of epoxidized octyl oleate and sodium stearate; the epoxidized unsaturated triglyceride-adjuvant combinations of epoxidized soybean oil and sodium stearate and epoxidized linseed oil and sodium stearate; and the epoxy ester mixture-adjuvant combinations of the epoxy esters of soybean oil, of linseed oil or of the fatty acid fraction of tall oil and sodium stearate, combinations of octyl epoxy soyate (e.g., VIKOFLEX 7080), octyl epoxy linseedate (e.g., VIKOFLEX 9080) or octyl epoxy tallate (e.g., DRAPEX 4.4) and sodium stearate are more preferred.

Detailed Description Text (34):
Octyl Epoxy Soyate: from Viking Chemical Company under the product designation VIKOFLEX 7080;

Detailed Description Text (35):
Octyl Epoxy Lindseedate: from Viking Chemical Company under the product designation VIKOFLEX 9080;

Detailed Description Paragraph Table (10):
TABLE X Various PET Compositions and Their Moldability Comparative Examples Examples 53 54 55 56 57
Composition Polyethylene 100 100 100 100 100 Terephthalate, parts Glass Fiber, phr* 43 43 43 43 43 Octyl Epoxy Linseed- 3.0 -- -- -- -- ate.sup.a, phr* Octyl Epoxy Soyate.sup.b, -- 3.0 -- -- -- phr* Octyl Epoxy Tallate.sup.c, -- -- 3.0 -- -- phr* Sodium Stearate, phr* 0.5 0.5 0.5 0.5 -- Zinc Sulfide.sup.d, phr* -- -- 2.0 -- -- Moldability Observation Excel- Excel- -- Non- Non- lent lent mold- mold- able able Number of Sticks/Number of Shots 0/10** 0/10** 0/15 10/10 10/10
*Parts per 100 parts PET **Estimate number of shots were not recorded Estimate number of shots were not recorded; however, in each run the molded specimen had to be physically removed from the mold .sup.a VIKOFLEX 9080 from Viking Chemical Company .sup.b VIKOFLEX 7080 from Viking Chemical Company .sup.c DRAPEX 4.4 from Argus Chemical Corporation .sup.d Zinc Sulfide colorizing agent

Detailed Description Paragraph Table (11):
TABLE XI Compositions of This Invention and Their Physical Properties Examples 53 54 55
Composition Polyethylene Terephthalate, parts 100 100 100 Glass Fiber, phr* 43 43 43 Octyl Epoxy Linseedate.sup.a, phr* 3.0 -- -- Octyl Epoxy Soyate.sup.b, phr* -- 3.0 --

Octyl Epoxy Tallate.sup.c, phr* -- -- 3.0 Sodium Stearate, phr* 0.5 0.5 0.5 Zinc Sulfide.sup.d, phr* -- -- 2.0 Properties Specific Gravity 1.583 1.587 1.578 Tensile Yield, psi 19,900 18,600 18,500 Tensile Elastic Modulus, 10.sup.3 psi 1,330 1,410 1,405 Elongation at yield, % 10 10 -- Flexural Strength, psi 32,000 28,500 27,700 Flexural Elastic Modulus, 10.sup.3 psi 1,440 1,421 1,360 Izod Impact, 1/4" bar, ft-lbs/in. 1.9 2.0 1.4 Izod Impact, 1/8" bar, ft-lbs/in. 1.7 1.7 -- Heat Deflection Temperature 239 241 237 @ 264 psi, .degree.C. Heat Deflection Temperature 250 249 -- @ 66 psi, .degree.C. Rockwell Hardness, R Scale 123 123 --

*Parts per 100 parts PET .sup.a VIKOFLEX 9080 from Viking Chemical Company .sup.b VIKOFLEX 7080 from Viking Chemical Company .sup.c DRAPEX 4.4 from Argus Chemical Corporation .sup.d Zinc Sulfide colorizing agent

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L4: Entry 93 of 98 File: USPT Dec 4, 1984

DOCUMENT-IDENTIFIER: US 4486561 A
TITLE: Injection-moldable thermoplastic polyester composition

Brief Summary Text (48):
Mixtures comprising monoepoxy aliphatic monocarboxylic acid esters and diepoxy aliphatic monocarboxylic acid esters (category (c) above) are available commercially. For example, epoxidized esters of soybean oil acids and linseed oil acids are available from Viking Chemical Company, 838 Baker Building, Minneapolis, Minn. 55402, under the product designation VIKOFLEX. Such epoxidized esters are: methyl epoxy soyate (VIKOFLEX 7010), ethyl epoxy soyate (VIKOFLEX 7020), propyl epoxy soyate (VIKOFLEX 7030), butyl epoxy soyate (VIKOFLEX 7040), hexyl epoxy soyate (VIKOFLEX 7060), octyl epoxy soyate (VIKOFLEX 7080), methyl epoxy linseedate (VIKOFLEX 9010), ethyl epoxy linseedate (VIKOFLEX 9020), propyl epoxy linseedate (VIKOFLEX 9030), butyl epoxy linseedate (VIKOFLEX 9040), hexyl epoxy linseedate (VIKOFLEX 9060) and octyl epoxy linseedate (VIKOFLEX 9080).

Brief Summary Text (59):
Highly preferred epoxidized plasticizer-adjuvant combinations are: the ester-adjuvant combination of epoxidized octyl oleate and sodium stearate; the epoxidized unsaturated triglyceride-adjuvant combinations of epoxidized soybean oil and sodium stearate and epoxidized linseed oil and sodium stearate; and the epoxy ester mixture-adjuvant combinations of the epoxy esters of soybean oil, of linseed oil or of the fatty acid fraction of tall oil and sodium stearate, combinations of octyl epoxy soyate (e.g., VIKOFLEX 7080), octyl epoxy linseedate (e.g., VIKOFLEX 9080) or octyl epoxy tallate (e.g., DRAPEX 4.4) and sodium stearate are more preferred.

Detailed Description Text (33):
Octyl Epoxy Soyate: from Viking Chemical Company under the product designation VIKOFLEX 7080;

Detailed Description Text (34):
Octyl Epoxy Linseedate: from Viking Chemical Company under the product designation VIKOFLEX 9080;

Detailed Description Paragraph Table (10):
TABLE X Various PET Compositions and Their Moldability Comparative Examples Examples 53 54 55 56 57
Composition Polyethylene 100 100 100 100 100 Terephthalate, parts Glass Fiber, 43 43 43 43 43 phr* Octyl Epoxy 3.0 -- -- -- -- Linseedate.sup.a, phr* Octyl Epoxy Soyate.sup.b, -- 3.0 -- -- -- phr* Octyl Epoxy Tallate.sup.c, -- -- 3.0 -- -- phr* Sodium Stearate, phr* 0.5 0.5 0.5 0.5 -- Zinc Sulfide.sup.d, phr* -- -- 2.0 -- -- Moldability Observation Excel- Excel- -- Non- Non- lent lent moldable moldable Number of Sticks/ 0/10** 0/10** 0/15 10/10 10/10 Number of Shots *Parts per 100 parts PET **Estimate number of shots were not recorded Estimate number of shots were not recorded; however, in each run the molded specimen had to be physically removed from the mold .sup.a VIKOFLEX 9080 from Viking Chemical .sup.b VIKOFLEX 7080 from Viking Chemical .sup.c DRAPEX 4.4 from Argus Chemical .sup.d Zinc Sulfide colorizing agent

Detailed Description Paragraph Table (11):
TABLE XI Compositions of This Invention and Their Physical Properties Examples 53 54 55
Composition Polyethylene Terephthalate, parts 100 100 100 Glass Fiber, phr* 43 43 43 Octyl Epoxy Linseedate.sup.a, phr* 3.0 -- -- Octyl Epoxy Soyate.sup.b, phr* -- 3.0 -- Octyl Epoxy Tallate.sup.c, phr* -- -- 3.0 Sodium Stearate, phr* 0.5 0.5 0.5 Zinc

Sulfide.sup.d, phr* -- -- 2.0 Properties Specific Gravity 1.583 1.587 1.587 Tensile Yield, psi 19,900 18,600 18,500 Tensile Elastic Modulus, 10.sup.3 psi 1,330 1,410 1,405 Elongation at yield, % 10 10 -- Flexural Strength, psi 32,000 28,500 27,700 Flexural Elastic Modulus, 10.sup.3 psi 1,440 1,421 1,360 Izod Impact, 1/4" bar, ft-lbs/in. 1.9 2.0 1.4 Izod Impact, 1/8" bar, ft-lbs/in. 1.7 1.7 -- Heat Deflection Temperature 239 241 237 @ 264 psi, .degree.C. Heat Deflection Temperature 250 249 -- @ 66 psi, .degree.C. Rockwell Hardness, R Scale 123 123 --

*Parts per 100 parts PET .sup.a VIKOFLEX 9080 from Viking Chemical .sup.b VIKOFLEX 7080 from Viking Chemical .sup.c DRAPEX 4.4 from Argus Chemical .sup.d Zinc Sulfide colorizing agent

L4: Entry 97 of 98 File: USPT Jan 13, 1981

DOCUMENT-IDENTIFIER: US 4244829 A
TITLE: Hydrocarbon-soluble epoxidized fatty acid esters as lubricity modifiers for lubricating oils

Detailed Description Text (5):
The lubricant of Example 1 was modified by the addition of 0.5 wt.% of epoxidized methyl ester of soya bean oil fatty acids containing 7 wt.% of oxirane oxygen and purchased as Vikoflex 7010 from the Viking Chemical Company, Minneapolis, Minn.

Detailed Description Text (7):
The lubricant of Example 1 was modified by the addition of 0.5 wt.% of epoxidized octyl ester of soya bean oil fatty acids containing 5.6 wt.% of oxirane oxygen and purchased as Vikoflex 7080 from the Viking Chemical Company, Minneapolis, Minn.

Detailed Description Text (9):
The lubricant of Example 1 was modified by the addition of 0.5 wt.% epoxidized methyl ester of linseed oil fatty acids containing 9.0 wt.% of oxirane oxygen and purchased as Vikoflex 9010 from the Viking Chemical Company, Minneapolis, Minn.

Detailed Description Text (11):
The lubricant of Example 1 was modified by the addition of 0.5 wt.% of epoxidized isopropyl ester of linseed oil fatty acids containing 8.4 wt.% of oxirane oxygen and purchased as Vikoflex 9030 from the Viking Chemical Company, Minneapolis, Minn.

Detailed Description Text (13):
The lubricant of Example 1 was modified by the addition of 0.5 wt.% of epoxidized butyl ester of linseed oil fatty acids containing 8.0 wt.% of oxirane oxygen and purchased as Vikoflex 9040 from the Viking Chemical Company, Minneapolis, Minn.

Detailed Description Text (15):
The lubricant of Example 1 was modified by the addition of 0.5 wt.% of epoxidized hexyl ester of linseed oil fatty acids containing 7.5 wt.% of oxirane oxygen and purchased as Vikoflex 9060 from the Viking Chemical Company, Minneapolis, Minn.

Detailed Description Text (17):
The lubricant of Example 1 was modified by the addition of 0.5 wt.% of epoxidized octyl ester of linseed oil fatty acids containing 7.0 wt.% of oxirane oxygen and purchased as Vikoflex 9080 from the Viking Chemical Company, Minneapolis, Minn.

Detailed Description Text (27):
The lubricant of Example 12 was modified by the addition of 0.5 wt.% epoxidized methyl ester of linseed fatty acids purchased as Vikoflex 9010 from the Viking Chemical Company, Minneapolis, Minn.